This material is based upon work supported by the National Science Foundation under Grant 1102461.
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I. PARTICIPANTS

A. People

Alliance Lead Executives

David Holger
Principal Investigator
Associate Provost
Dean of the Graduate College
Iowa State University

Dr. Holger provides executive oversight and guidance to the IINspire-LSAMP project. He serves as the primary contact for the lead executive team and facilitates collaboration with the governing board.

Alliance Co-Principal Investigators

The co-principal investigators provide executive input on the IINspire-LSAMP project, collaborate with the lead executive team, and provide support to the alliance director and individual campus directors.

Raynard Kington
Co-Principal Investigator
President
Grinnell College

Kim Linduska
Co-Principal Investigator
Executive Vice President for Academic Affairs
Des Moines Area Community College

Harry Martyn
Co-Principal Investigator
Department Chair, Science
Little Priest Tribal College

Fredrik Ohles
Co-Principal Investigator
President
Nebraska Wesleyan University

Alliance Leadership Team

Diane Rover
Alliance Director
Professor of Electrical and Computer Engineering
Iowa State University

Dr. Rover serves as the alliance director for the IINspire-LSAMP project. She provides daily oversight of alliance level activities among all 16 institutions, ensures the PI team is informed of IINspire-LSAMP activities, successes, and challenges, and communicates and implements PI team and governing board directives.

Jim Swartz
Inclusive Pedagogy Leader
Dack Professor of Chemistry
Director of the Center for Science in the Liberal Arts
Grinnell College

Dr. Swartz provides guidance to the development of the inclusive pedagogy. He works closely with the Science Education Resource Center (SERC) to implement and facilitate pedagogy workshops and develop an intranet site for the IINspire alliance to conduct pedagogy development activities.
Frankie Santos Laanan  
**Internal Assessment Evaluator**  
*Professor of Educational Leadership and Policy Studies*  
Iowa State University  
Dr. Laanan coordinates assessment and evaluation for the IINspire-LSAMP program. He oversees the design and implementation of a research and evaluation framework. He works in close collaboration with the External Evaluation Consultant.

Mary Darrow  
**Graduate Assistant**  
*Educational Leadership and Policy Studies*  
Iowa State University  
Dr. Darrow provides assistance to the evaluation team. She will be assisting with the implementation of program activities and developing the IINspire-LSAMP evaluation framework.

Danielle Mitchell  
**Program Assistant**  
*Graduate College*  
Iowa State University  
Ms. Mitchell provides support to all aspects of the IINspire-LSAMP project. She assists in scheduling and providing agendas for meetings, maintaining the website, writing reports and memos, organizing program workshops and conferences, and provides faculty support.

**Alliance Governing Board**  
The governing board provides consultation on overall direction and critical issues facing the project.

- **P. Barry Butler**  
  *Executive Vice President and Provost*  
  University of Iowa

- **Jacque Carter**  
  *President*  
  Doane College

- **David Chown**  
  *Chief Academic Officer and Senior Vice President for the Residential University*  
  Upper Iowa University

- **Samuel Dosumu**  
  *Vice President for Academic Affairs and Chief Academic Officer*  
  Hawkeye Community College

- **Gloria Gibson**  
  *Executive Vice President and Provost*  
  University of Northern Iowa

- **Ellen Hay**  
  *Interim Dean and Chief Academic Officer*  
  Augustana College

- **Elizabeth Hoffman**  
  *Executive Vice President and Provost*  
  Iowa State University

- **Kevin Kraus**  
  *Vice President for Academic Affairs*  
  Luther College
Bill Lamb  
*Vice President of Academic Affairs* 
Kirkwood Community College

Kim Linduska  
*Executive Vice President for Academic Affairs* 
Des Moines Area Community College

Judy Muyskens  
*President for Academic Affairs* 
Nebraska Wesleyan University

Brigid Quinn  
*Academic Dean* 
Little Priest Tribal College

Fred Ribich  
*Interim Vice President for Academic Affairs* 
Wartburg College

Christopher Russell  
*Dean of Students and Academic Affairs* 
Iowa Valley Community College District

Ron Serpliss  
*Chief Academic Officer and Dean of Clinton Community College* 
Eastern Iowa Community College District

Paula Smith  
*Vice President for Academic Affairs* 
Grinnell College

**Alliance Campus Directors (alphabetical by last name)**

Campus directors provide oversight of IINspire-LSAMP project activities on their respective campuses. They serve as the lead contact for faculty, staff, and students. Campus directors are responsible for developing STEM campus activities and increasing student recruitment and retention in STEM fields.

Jeffrey Armstrong  
*Vice Chancellor of Instruction* 
Eastern Iowa Community College District

Linda Barnes  
*Associate Professor of Biology* 
Iowa Valley Community College District

Bradley Chamberlain  
*Associate Professor of Chemistry* 
Luther College

Robert Driggs  
*Dean of Mathematics and Science* 
Kirkwood Community College

Samuel Dosumu  
*Vice President for Academic Affairs and Chief Academic Officer* 
Hawkeye Community College
LeAnn Faidley  
*Assistant Professor of Engineering*  
Wartburg College

Kari Hensen  
*Associate Dean of Arts and Sciences*  
Des Moines Area Community College

Richard Hichwa  
*Senior Associate Vice President for Research*  
University of Iowa

Candice Howell  
*Assistant to the Provost for Student Success and Diversity*  
Nebraska Wesleyan University

Harry Martyn  
*Department Chair, Science*  
Little Priest Tribal College

Katherine McCarville  
*Associate Professor of Geosciences*  
Upper Iowa University

Mark McDermott  
*Assistant Professor of Science Education*  
Wartburg College

Douglas Mupasiri  
*Interim Head and Professor of Mathematics*  
University of Northern Iowa

Derrick Rollins  
*Professor of Chemical and Biological Engineering, Professor of Statistics*  
*Professor-In-Charge of Community Based Recruitment and Transition, College of Engineering*  
Iowa State University

Christopher Russell  
*Dean of Students and Academic Affairs*  
Iowa Valley Community College District

Lori Scott  
*Professor of Biology*  
Augustana College

Jim Swartz  
*Dack Professor of Chemistry*  
*Director of the Center for Science in the Liberal Arts*  
Grinnell College

Christopher Wentworth  
*Professor of Physics*  
Doane College

**Alliance Campus Team Members (alphabetical by last name)**

Alliance team members work one-on-one with students participating in IINspire-LSAMP activities or assist the campus director with administration and planning of LSAMP events at their respective institutions. Activities
include recruiting and mentoring students, matching students with internships and/or summer research opportunities, family support activities, and developing bridge programs.

Matthew Bandstra  
*Anatomy, Physiology and Biology Faculty*  
Iowa Valley Community College District

Joy Becker  
*Associate Professor of Mathematics*  
Wartburg College

Mariah Birgen  
*Professor of Mathematics*  
Wartburg College

Samantha Larimer Bousquet  
*Assistant Professor of Biology*  
Wartburg College

Scott Carlson  
*Associate Professor of Biology*  
Luther College

Kavita Dhanwada  
*Associate Dean, College of Humanities, Arts and Science*  
University of Northern Iowa

Mark Eichinger  
*Associate Professor of Biology*  
Luther College

Margaret Farrar  
*Associate Dean of the College*  
Augustana College

Liesl Fowler  
*College Registrar*  
Augustana College

Angela Ghrist  
*Biology Instructor*  
Scott Community College

Mary Jo Gonzales  
*Associate Dean of Students*  
Iowa State University

Amanda Graeber  
*Grants and Projects Manager*  
Hawkeye Community College

Susan Granet  
*Associate Registrar*  
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Connie Hargrave
Associate Professor of Curriculum & Instruction
Director of Science Bound
Iowa State University

Peggy Hart
Associate Professor of Mathematics
Doane College

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Upper Iowa University

Andrea Holmes
Associate Professor of Chemistry
Doane College

Latricia Hylton
Math Coordinator, Academic Learning Center
University of Northern Iowa

Wilma Jackson
Director of Multicultural Support Services
Doane College

Wilfred Johnson
Director, UNI Classic Upward Bound
University of Northern Iowa

Christie Kangas
Director of Admissions
University of Northern Iowa

Ramesh Laungani
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Doane College

Patricia Leigh
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Iowa State University

Ellen Kabat Lensch
Dean of Arts and Sciences
Director of Advanced Technology Environmental Education Center
Eastern Iowa Community College District

Krystal Madlock
Director of Student Diversity Program
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Kate Marley
Assistant Professor of Biology
Doane College

J. Keith McClung
Professor of Biology
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Sarah McDowell  
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Nebraska Wesleyan University

Craig Ogilvie  
*Assistant Dean, Graduate College*  
Iowa State University

James Perez  
*Associate Professor of Physics*  
Luther College

Carrie Petr  
*Director of the Hansen Leadership Program*  
Doane College

Jennifer Pothast  
*Assistant Professor of Mathematics*  
Wartburg College

Brian Ritter  
*Department Coordinator for Conservation Technology*  
Eastern Iowa Community College District

Dane Rowley  
*Dean of Admissions*  
Augustana College

Debra Sanborn  
*Program Coordinator, Dean of Student’s Office*  
Iowa State University

Sue Standley  
*Director of Financial Assistance*  
Augustana College

Jennifer Stoffel  
*Assistant Professor of Biology*  
Upper Iowa University

Russ Souchek  
*Professor of Environmental Science*  
Doane College

Sharon Varallo  
*Professor of Communication Studies*  
Augustana College
Joel Weyand  
*Vice President for Admission*  
Doane College  

Sally Wilson  
*Biology Faculty*  
Iowa Valley Community College District  

Kristin Woods  
*Coordinator, New Student Programs*  
University of Northern Iowa  

### B. Organizations  

**IINspire-LSAMP Alliance Institutions**  
Augustana College  
Des Moines Area Community College  
Doane College  
Eastern Iowa Community College District  
Grinnell College  
Hawkeye Community College  
Iowa State University  
Iowa Valley Community College District  
Kirkwood Community College  
Little Priest Tribal College  
Luther College  
Nebraska Wesleyan University  
University of Iowa  
University of Northern Iowa  
Upper Iowa University  
Wartburg College  

### C. Collaborators  

**Mariko Chang**  
*External Evaluation Consultant*  
Dr. Chang is an experienced evaluator who consults with institutions around the country to evaluate programs for broadening the participation of underrepresented groups in STEM fields and to measure the broader impacts of research and education projects. She begins August 1, 2012, after responding to Iowa State’s RFP in June and being selected through competitive review. She has proposed an evaluation plan, and will begin working with the internal assessment team to refine and implement the plan. She will perform the formal program evaluation for year 2 of the project.  

**J. Adin Mann III**  
*Alliance Advocates Liaison*  
*Principal Engineer*  
Fisher Value Division, Emerson Process Management  
Dr. Mann developed the IINspire-LSAMP proposal before leaving Iowa State University. He is currently employed at the Fisher Value Division of Emerson Process Management, which is an IINspire-LSAMP alliance advocate. Dr. Mann will serve as the alliance advocates liaison to provide leadership among the alliance advocates and between the advocate community and the alliance.  

**Alliance Advocates**  
Alliance advocates offer opportunities to impact state and regional policies, extend research and internship opportunities to IINspire-LSAMP students, and provide additional program funding.  

U.S. Department of Energy Ames Laboratory  
Association of Universities for Research in Astronomy (AURA)
Avenue Scholars Foundation  
Bethune-Cookman University  
Fisher Controls International  
HNI Corporation  
Iowa 4-H Youth Program  
Iowa Biotechnology Association  
Iowa Business Council  
Iowa Department of Economic Development  
Iowa Mathematics and Science Education Program  
Iowa Space Grant Consortium (ISCG)  
Nebraska Academy of Sciences  
Novel Chemical Solutions  
Office of the Governor, State of Iowa  
Rockwell-Collins Corporation  
State Science and Technology Fair of Iowa (SSTFI)  
USDA-ARS Corn Insects and Crop Genetics Research Unit  
USDA-ARS National Laboratory for Agriculture and the Environment

D. Synergistic Partners

The IINspire-LSAMP project collaborates with several major programs to share information and programming. These programs are engaged in collaborative projects and meetings with IINspire-LSAMP alliance institutions.

Center for Biorenewable Chemicals (CBiRC), NSF Engineering Research Center, Iowa State University

Research Experiences for High School Teachers Program

The CBiRC Research Experiences for High School Teachers Program is designed to provide teachers with experience in the design, methods, and analysis of research in biorenewable commodities to replace fossil fuels. Program participants are provided with tools, experience and ongoing relationships with career scientists and fellow teachers that will enable them to share the latest development in STEM fields and inspire students to learn more about science and engineering and their related career paths. More information: http://www.cbirc.iastate.edu/education/precollege/ret/

Adah Leshem  
Pre-College Education Programs Director

Krishna Athreya  
Diversity Director

Summer Program for Enhancing Engineering Development (SPEED) at Iowa State University

A strong component of SPEED is its emphasis on engineering exposure, professional development, and leadership enhancement. The program offers both an academic and a research track during the summer on the Iowa State University campus. More information: www.engineering.iastate.edu/speed/

Derrick Rollins  
Professor in Charge

Laura Centeno-Diaz  
Program Coordinator

Howard Hughes Medical Institute (HHMI) Project at Iowa State University

The goal of Iowa State’s HHMI Project initiatives is to attract, retain and help students succeed in science. Students in their first two years in college will experience the excitement of discovery, the joy of asking questions about how the universe works, and the satisfaction that they can use their scientific skills to help make a difference in this world. Through one of its initiatives, the HHMI Project is developing a pathway for community college students to visit Iowa State and work in faculty research labs during the summer following their freshman year. HHMI partnered with IINspire-LSAMP community colleges to identify a cohort of students to participate in the 2012 summer program. More information:
Craig Ogilvie  
*HHMI-ISU Director*

Jermaine Johnson  
*Program Coordinator/Graduate Assistant*

**Iowa Experimental Program to Stimulate Competitive Research (Iowa EPSCoR)**  
In order to achieve its mission, Iowa EPSCoR focuses on increasing active participation of underrepresented undergraduate students in research related to renewable energy and energy efficiency across all three of Iowa’s Regents institutions. The IINspire-LSAMP Alliance is collaborating with Iowa EPSCoR to engage URM STEM students in research opportunities and community colleges in developing the workforce to advance renewable energy technologies. More information: [www.iowaepscor.com/](http://www.iowaepscor.com/)

Chitra Rajan  
*Co-Project Director of Iowa EPSCoR  
Associate Vice President for Research  
Iowa State University*

## II. ACTIVITIES

### A. Project Overview

The Iowa Illinois Nebraska STEM Partnership for Innovation in Research and Education (IINSPIRE) is an alliance among sixteen state, private, and community colleges in Iowa, Illinois, and Nebraska, working together to broaden the participation of underrepresented minorities in science, technology, engineering, and mathematics (STEM) education in the Midwest. The alliance consists of six 2-year institutions, seven private bachelor granting institutions, and three public universities. In addition, there are state agencies, national laboratories, education programs, and companies who are affiliated with the alliance.

The program’s goal is to more than double the number of URM STEM graduates from our alliance within five years and to build a foundation for larger increases in future years. Because students from populations historically underrepresented in STEM disciplines are a growing segment of the region’s population, there is a particular statewide urgency to remove the barriers to progress in developing a diverse STEM workforce.

The alliance has set forth these objectives to guide alliance-wide activities in pursuit of the goal:

1. Coordinate community based recruiting practices that market the IINspire-LSAMP program to teachers, counselors, parents, and students throughout Iowa, Illinois, and Nebraska.
2. Identify and recruit the cohort of students currently in our institutions who have the aptitude and interest in STEM but do not enter college with the intent of pursuing a STEM career.
3. Initiate early and sustained initiatives on transitions from high school to college and transitions from community colleges to bachelor granting institutions.
4. Develop a faculty peer group that collaborates across the alliance to develop inclusive pedagogy and mentoring that leads to greater student success.
5. Develop a research certificate supported by formal research training opportunities, internships, research experiences, and a high standard expected on verbal and written communication.
6. Train alliance and external partner mentors of research interns on mentoring skills.
7. Encourage each alliance institution to work on the areas critical for them.
8. Provide assessment results that each institution can use to improve their programming.

Program activities are built on a foundation of available research and resources, focusing on the transitions from high school and community college to ensure that each student has rigorous academic preparation, social support, research preparation, and financial support to complete their STEM degree and continue onto graduate school. IINspire-LSAMP activities are being initiated to further analyze and understand these transitions, develop
additional models to increase the number of students at multiple entrance points and nurture them through the completion of the STEM degree with a set of structures and monitored activities. Figure 1 illustrates key learning and training activities that define the IINspire-LSAMP student experience.

**FIGURE 1. Student Experience Model**

The alliance is designed to connect these key activities to existing programs at alliance institutions in order to leverage the resources and expertise. The activity sequence is designed based on a standard progression through a 4-year institution, but alliance institutions are implementing appropriate student advising to ensure each student has the opportunities and support they need to graduate.

As shown in the figure, students participate in programming through pre-matriculation and community college transfer bridge programs, internships, research experiences and certification, campus seminars, mentoring, and alliance meetings. The programming is coordinated by team members on each campus and involves existing and new activities at each campus, as well as joint activities by the alliance. A key activity essential to the student experience is access to individual counseling, academic advising, and professional development and career advising.

During the first year of the IINspire-LSAMP grant, the infrastructure has been developed to conduct the project, team members have interacted and engaged in planning and pilot activities, various resources and expertise have been identified to help the project succeed, and the program has positioned itself to implement the model during the second year.

**B. Research and Education Activities**

**B.1 Activities Overview**

Table 1 below lists each of the program objectives and highlights implemented, ongoing or planned activities by institution type. The activities are described in more detail in subsequent sections II.B.2 - II.B.8. The table reflects the variety of activities by alliance members that are contributing to the IINspire-LSAMP student experience.
<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>STATE UNIVERSITIES</th>
<th>PRIVATE 4-YEAR INSTITUTIONS</th>
<th>COMMUNITY COLLEGES</th>
</tr>
</thead>
</table>
| Community Based Recruiting       | • Collaborating with on-campus summer research programs (e.g., SPEED) to expose incoming students to STEM fields.  
• Partnered with SPEED and CB/RC to host a science teacher. | • Developing career awareness activities for prospective students.  
• Assisted with a summer science seminar for high school students. | • Reaching out to high school faculty to educate and involve them in LSAMP.  
• Conducted pre-college activities, e.g., camps, career fairs, etc.  
• Invited current URM students to meet with high school students to discuss challenges/expectations in pursuing a STEM degree. |
| Recruiting of Current Students   | • Created a coursework action plan for prospective STEM students.  
• Identifying and recruiting prospective IINspire-LSAMP students. | • Identifying and recruiting eligible LSAMP students into IINspire program.  
• Developed annual orientation week program.  
• Engaging current LSAMP students.  
• Offering sample activities to gauge URM student interest and to engage other URM STEM students.  
• Developing summer pre-enrollment program. | • Developed task force to assess and enhance student recruitment and retention.  
• Identifying students to participate in the IINspire-LSAMP program.  
• Planning summer camp targeting URM students.  
• Planning open house/recruiting events. |
| Bridge Programs                  | • Working with ISU SPEED and ISU HHMI to provide academic support to IINspire-LSAMP students  
• Providing academic support activities to LSAMP students | • Developed/developing a summer bridge program  
• Gathering information to assist community college students transition successfully into a 4-year college  
• Offering one-on-one academic and transition advising to URM students  
• Developing student support services options for LSAMP awardees, such as mentoring, internships | • Developed “Basic Program” course for Pre-Engineering transfer students  
• Hosted engineering event for students interested in transferring to a 4-year institution  
• Held monthly seminars to discuss educational planning, internships, transfer planning, etc. |
| Inclusive Pedagogy/              | • Collaborating with Grinnell College to launch inclusive pedagogy activities for faculty. | • Developing faculty mentoring workshop. First workshop will focus on summer bridge programs. | • Developed faculty workshops.  
• Developing materials to assist students.  
• Facilitating professional development opportunities and participation initiatives for STEM faculty.  
• Planning open house/recruiting event that involves faculty peer groups, mentoring, and pedagogy. |
<p>| Faculty Peer Groups              |                                                                                        |                                                                                             |                                                                                     |</p>
<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>STATE UNIVERSITIES</th>
<th>PRIVATE 4-YEAR INSTITUTIONS</th>
<th>COMMUNITY COLLEGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Training</td>
<td>• Working with ISU SPEED and ISU HHMI to provide academic support to IINspire-LSAMP eligible students.</td>
<td>• IINspire-LSAMP students participated in summer research and internship opportunities.</td>
<td>• Collaborated with ISU HHMI program to provide research opportunities to students.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Developing student support programs.</td>
<td>• Developing pre-STEM certificate.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Developing and identifying research opportunities for students.</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>• Recruiting students to participate in undergraduate research experiences.</td>
</tr>
<tr>
<td>Mentoring and Peer Networks</td>
<td>• Teamed up with ISU HHMI program to conduct mentoring training program for faculty and research group leaders.</td>
<td>• Recruited faculty mentors.</td>
<td>• Invited current URM students to meet with prospective students to discuss challenges/ expectations in pursuing a STEM degree.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Planning student mentoring program.</td>
<td>• Developed a &quot;Meet with Faculty&quot; lunch program for IINspire-LSAMP students.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Offering academic year peer tutoring and mentoring program.</td>
<td>• Identifying and recruiting faculty to inform students about IINspire-LSAMP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identifying successful upper level URM STEM students to serve as mentors during year 2.</td>
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<tr>
<td></td>
<td></td>
<td>• Establishing a peer mentor team to develop activities for URM STEM students.</td>
<td></td>
</tr>
<tr>
<td>Institutional Commitments</td>
<td>• Invited local companies to give presentations to students, e.g., Pfizer, Tech Works, etc.</td>
<td>• Establishing student support services, including internship opportunities with local companies.</td>
<td>• Engaging local companies and colleges to provide internship opportunities for students.</td>
</tr>
<tr>
<td>Assessment and Evaluation</td>
<td>• Assembled evaluation team including internal evaluator and external consultant.</td>
<td>• Developing survey to identify prospective students.</td>
<td>• Developing monitoring plan to track LSAMP students at their respective institutions.</td>
</tr>
<tr>
<td></td>
<td>• Developing a data model and targets.</td>
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<tr>
<td></td>
<td>• Testing, piloting, and using assessment tools with student cohorts.</td>
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</tbody>
</table>
Table 2 summarizes the activities from Table 1 in matrix form by institution. It represents a snapshot of activities across the alliance at the end of year one. It is not exhaustive, as institutions reported their activities to varying extents. Nonetheless it shows that each of the objectives is being addressed by multiple alliance members. Given the grant startup time and that subcontracts were issued in the second half of year one, the resources and programs leveraged by alliance members to promote IINspire-LSAMP objectives are impressive. The matrix denotes activities implemented/offered by institutions during year one with a red dot (●) and activities planned in preparation for year two with a yellow dot (●●). As the project progresses, it is expected that each institution will actively participate in most or all of the objectives.

**TABLE 2. Objectives Addressed by Alliance Institution Activities During Year 1**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Community Based Recruiting</th>
<th>Recruiting of Current Students</th>
<th>Bridge Programs</th>
<th>Inclusive Pedagogy/ Faculty Peer Groups</th>
<th>Research Training</th>
<th>Mentoring Peer Networks</th>
<th>Institutional Commitments</th>
<th>Assessment/Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augustana College</td>
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<td>Doane College</td>
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<tr>
<td>Des Moines Area Community College</td>
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<tr>
<td>Eastern Iowa Community College District</td>
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<tr>
<td>Grinnell College</td>
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<tr>
<td>Hawkeye Community College</td>
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</tr>
<tr>
<td>Iowa State University</td>
<td>●●●●</td>
<td>●</td>
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</tr>
<tr>
<td>Iowa Valley Community College District</td>
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<td>Luther College</td>
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<td>Upper Iowa University</td>
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<td>Wartburg College</td>
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**Notes:**
*Little Priest Tribal College and Kirkwood Community College are not included in the table due to transitions in campus directors affecting coordination and/or reporting of activities.*

Selected activities from Tables 1 and 2 are briefly described in the following sections.
B.2 Community-Based Recruiting

Objectives 1 and 2: Coordinate community based recruiting practices that market the IINspire-LSAMP program to teachers, counselors, parents and students throughout Iowa, Nebraska, and Illinois. Identify and recruit students currently in alliance institutions who have the aptitude and interest in STEM but do not enter college with the intent of pursuing a STEM career. Collaborate with community based recruiting models within the alliance.

These objectives focus on recruiting practices that increase the awareness and interest of students in STEM study and careers before and after entering college. Programming is coordinated within institutions and across institutions to enhance recruiting at various entrance points into STEM degree programs. In addition to recruiting high school students, the alliance is working on initiatives to recruit current college students who have the talent and aptitude for STEM fields, but did not choose to pursue a STEM degree for various reasons such as academic confidence, lack of STEM career knowledge, or family advice.

Alliance institutions have implemented programs involving K-12 teachers, high school students and college students to promote interest in STEM fields. These institutions either collaborated with existing STEM programs or with other alliance institutions to offer and promote events. Alliance institutions are in various stages of implementing activities to identify talented URM students interested in pursuing a STEM degree. Activities involve pre-enrollment and orientation programs, assessment tools to assist in determining student preparedness prior to enrollment, areas of need for academic support, and identifying students currently enrolled in STEM courses.

Center for Biorenewable Chemicals (CBIrc)
Research Experiences for High School Teachers Two-Week Summer Internship Program
IINspire-LSAMP partnered with SPEED and CBIrc on the Iowa State University campus to host a teacher from the Omaha North Magnet High School (Nebraska). The teacher participated in programs by CBIrc to train teachers, assisted in the SPEED summer program, and provided input on recruiting and retaining students from disadvantaged low income communities. In addition, the teacher provided assistance for fundraising to support student recruitment and success. During the two-week program, the teacher served as a faculty representative for students in the academic track of the SPEED program.

Discover Engineering Day
Des Moines Area Community College (DMACC) and Iowa State University co-sponsored a one-day event targeting college-age students considering a career in engineering. The program invited students to learn about the many engineering careers and take part in hands-on interactive engineering activities and competitions, and to meet with engineering professionals and college students. Students received valuable transfer information to colleges that offer 4-year engineering programs.

Grinnell Pre-Orientation Week
Grinnell College is developing a week-long event that targets URM students, first generation students, and women interested in physics, math, and computer science. Attendance of 40-50 participants is expected or 10% of the entering class.

Luther Summer Science Seminars Program
Luther College conducted a six-day summer seminar program designed for high-ability URM high school students to explore STEM experiments in a college setting. The students spend four days in the laboratory with faculty from biology, chemistry, and physics. Students are provided mentoring from existing URM college students who have experienced success in the STEM fields.

Project Lead the Way (PLTW)
PLTW is a national program for precollege engineering education that focuses on middle and high school students. The University of Iowa and Iowa State University co-lead the state’s PLTW program with significant involvement by Iowa community colleges. University of Iowa efforts through Iowa EPSCoR are engaging and involving community college faculty and students specifically for energy related STEM education, research activities and workforce development.
Ethnic Diversity Program
The Ethnic Diversity Program at the University of Iowa sponsored a one-day trip for Upper Iowa University students to visit the UI Engineering graduate program. IINspire-LSAMP students met with Artis Hampshire-Cowan, Senior Vice President, of Howard University, Washington D.C, noted leadership speaker.

B.3 Bridge Programs and Transitions

Objective 3: Initiate early and sustained initiatives on transitions from high school to college and transitions from community college to bachelor granting institutions.

Bridge programs targeting entering freshmen and community college transfer students provide academic support in preparation for the STEM disciplines, social support to URM STEM students, and professional development opportunities.

Alliance institutions have established or are planning, developing, and implementing various types of summer and pre-matriculation bridge programs at their respective campuses. Grinnell College is planning a faculty workshop to share best practices for developing a summer bridge program. The following programs on alliances campuses are designed to provide academic support to students and/or assist students transitioning to a 4-year program.

Augustana College Science Scholars (ACSS) Program
Using funding obtained through the NSF S-STEM program, Augustana College created the ACSS Program, which provides scholarships, curriculum and advising support to students majoring in STEM fields. The application process for the program was developed and launched during the 2011-2012 academic year. Twelve entering freshman were selected to participate in the ACSS program. Three of the twelve students are eligible for the IINspire-LSAMP program. The IINspire-LSAMP students will be offered an opportunity to participate in a research experience during their first year in the program.

Summer Program for Enhancing Engineering Development (SPEED)
A two-week SPEED program, pilot tested during summer 2012, is a spinoff of Iowa State University's established eight-week Summer Program for Enhancing Engineering Development. High school seniors were invited to the Iowa State University campus for a two-week program that coincided with the start of the regular eight-week SPEED program. The short program offers a research academic track that provides students with both coursework and research. Students participated in laboratory research and shadowed a research graduate student. Students also participated in a number of professional development activities. At the conclusion of the program, students were required to submit a written report on what they learned about the research project. The goal of the two-week SPEED program is to expose students to science and engineering at ISU and to empower them as ambassadors for STEM as they return to their high schools.

B.4 Faculty Engagement and Pedagogy Development

Objective 4: Develop faculty peer groups that collaborate across the alliance to share inclusive pedagogy and mentoring practices that lead to greater student success.

A faculty peer group is a group of faculty members involved in pedagogical improvements on their campuses, working collaboratively on action plans for faculty development and providing curriculum leadership on alliance campuses. A range of approaches is necessary to address institutional and student diversity. Pedagogy developments will be presented and discussed during a workshop at the annual alliance meeting. Alliance campus directors have been creating awareness of the IINspire-LSAMP program on their campuses and informing STEM faculty about program opportunities. Several alliance institutions have developed or are developing workshops to encourage faculty to share best practices, identify new approaches and design materials to assist STEM students.

The alliance leadership team is working with the Science Education Resource Center (SERC) on a web-based portal that allows the alliance to collectively and effectively work on pedagogy development activities.
A pedagogy workshop is being planned for later fall 2012 as a collaborative forum to explore best practices, challenges, and the needs of each alliance institution.

B.5 Student Research Opportunities, Training, and Certificate

Objective 5: Facilitate mentored research opportunities and develop a research certificate supported by formal research training, internships, and research experiences.

As shown in Figure 1, research training and experiences are integral to the IINspire-LSAMP student experience. This student experience defines the main elements of a research certificate program. The certificate establishes a common expectation among the alliance institutions. It provides an IINspire student with training that is valued by prospective graduate schools and employers. It gives a progression in training from initial introductory experiences to focused/guided training and finally to independent learning.

The certificate program prepares students to participate in a mentored research experience. Students work with faculty mentors who have participated in mentor training. A student’s progress in the research certificate may be used to better understand the qualifications and preparedness of a student being evaluated for an internship. The program facilitates research opportunities with faculty at alliance institutions and summer internships at several participating academic and non-academic sites within the alliance. Students also work with a mentor at an external internship site. Mentor training will be made available through the alliance.

Several alliance institutions have elements of the research certificate program in place. Others are developing program elements. Individual students and small cohorts have been engaged in summer research training, experiences, and internships. In addition, alliance institutions have been collaborating with other funded programs to identify URM STEM students interested in participating in the IINspire-LSAMP program and to obtain research opportunities for IINspire students.

ISU Howard Hughes Medical Institute (HHMI) Community College Program

The Iowa State University HHMI Project developed a program for community college students to visit Iowa State to work in faculty research laboratories during summer 2012. The eight-week program invited twelve URM students from Iowa Valley Community College District’s Marshalltown Campus who are leaning towards science or engineering B.S. degrees to participate. Students participated in daily math workshops taught by ISU Campus Director, Derrick Rollins, weekly biology or physics workshops, and visited local industries. In addition, students were advised on careers, resume writing, university study skills, writing laboratory reports, community service, and leadership. The IINSpire-LSAMP program partnered with the HHMI Project to provide staff support and administrative assistance in the development and implementation of program elements.

Association of Universities for Research in Astronomy (AURA)

The IINspire-LSAMP PI and alliance director met with a representative of the Association of Universities for Research in Astronomy (AURA), an external partner, to identify mutual interests and share information about the LSAMP program. AURA is interested in providing research internships for IINspire students and involving their science and engineering staff in IINspire-LSAMP mentor training. Representatives of AURA will visit the ISU campus in October 2012 to work on specific arrangements.

Science and Mathematics Division Research Poster Fair

Two IINspire-LSAMP students from Upper Iowa University will participate in the Science and Mathematics Division Undergraduate Research Poster Fair to be held on the University of Iowa campus. The fair includes portfolio assessments for environmental science majors.

Meet Every Two Weeks Lunch Program

Iowa Valley Community College District developed a program to encourage students and faculty mentors to hold regular meetings. The lunch includes group discussions and opportunities for students to meet individually with faculty members.
B.6 Mentoring Programs

Objective 6: Train alliance and external partner mentors of research internships on mentoring skills. Develop and share mentoring training resources and programs for faculty and professional staff, student peer mentors, and faculty peer groups.

The IINspire-LSAMP program is developing a comprehensive mentoring program that supports IINspire students, research mentors (faculty, scientists, engineers), peer mentors, role models, various techniques and modalities for mentoring, 2-year/4-year interactions, professional development, and online resources. Each alliance institution will tailor the program based on existing structures and specific needs.

Faculty and professionals hosting IINspire-LSAMP students for research experiences or internships are expected to have mentor training. Students serve as peer mentors to support and advise new and prospective IINspire students. Alumni and graduate students serve as role models.

During year one, alliance institutions have reviewed, adapted or developed research and peer mentor training programs. Several institutions are planning activities for fall. For example, Eastern Iowa Community College District is planning an event for students that will include learning community participation, peer group pedagogy development, and mentoring initiatives. Student peer mentoring models used by alliance institutions will be discussed at the annual meeting.

ISU Howard Hughes Medical Institute (HHMI) Mentor Training Program
The IINspire-LSAMP program collaborated with the Iowa State University HHMI Project to conduct a mentor training session for ISU STEM researchers (faculty, postdocs, and graduate students) in early June 2012 in advance of summer undergraduate research programs. The program included panel discussions and case studies. In the panels, professors and graduate students described successes and challenges they faced while hosting undergraduate students in their research laboratories. Program participants were given three case studies to review and discuss in small groups. The cases were taken from the “Entering Mentoring” resource developed by Handelsman and others for the University of Wisconsin HHMI Professors Program. Craig Ogilvie, Professor of Physics and Astronomy, and PI of the HHMI Project, provided opening remarks. IINspire-LSAMP staff supported the event and arranged a video recording for future use. Workshop surveys were developed and disseminated; the results are listed in section III. The program’s speakers are listed below:

- Paul Canfield, Distinguished Professor of Physics and Astronomy
- Diane Rover, Professor of Electrical and Computer Engineering
- Brian Hornbuckle, Associate Professor of Agronomy
- Loreto R. Prieto, Professor of Psychology, Director of U.S. Latino/a Studies
- Feng Jia, Graduate Student, Chemical and Biological Engineering
- Bethany Juhnke, Graduate Student, Mechanical Engineering

Leadership in Equity and Inclusion Workshop
The Leadership in Equity and Inclusion Workshop was hosted by the University of Iowa College of Engineering in April 2012 for Iowa EPSCoR (http://iowaepscor.org/news-leadership-seminar). Participants included students, staff, and faculty as well as engineers and other personnel from local companies such as Alliant Energy, Fisher Controls (Emerson Process Management), and Rockwell Collins. The workshop was led by experienced trainers from the National Coalition Building Institute (NCBI, http://ncbi.org/).

B.7 Project Management and Institutional Commitments

Objective 7: Leverage institutional resources, align with institutional goals, develop strategic partnerships internally and externally, and use data and evidence to implement effective programs based on institution-specific needs.

Organizational and institutional structures, resources, and data are managed and leveraged in support of IINspire-LSAMP program goals across the alliance. The IINspire-LSAMP management structure is divided
into four groups: (1) the Governing Board, (2) the Lead Executive Team (PI and co-PIs), (3) the Alliance Leadership Team (Alliance Director, Assistant Director, Evaluator, Pedagogy Leader, and Program Manager), and (4) Campus Directors (part of the Steering Council). These groups are depicted in the organization chart in Figure 2 below. Five IINspire-LSAMP students will be appointed to the Steering Council. In addition to alliance management, the chart also shows a branch with internal/institution and external partners, which collaborate with but are not managed by the alliance. Their formal connection to alliance management is through representation on the Governing Board and the Steering Council. The external evaluation consultant and the external partner liaison are not shown as separate boxes but are key collaborators for the project.

![Organization Chart](image)

**FIGURE 2. IINspire-LSAMP Alliance Organization Chart**

During the first year of the grant, the management structure was put in place, and the alliance office was set up. Section I lists the individuals fulfilling various roles. The alliance director was named in October 2011. The director conducted a search for a program assistant in January 2012, who began in March. The program assistant worked with the internal evaluator and ISU Purchasing to advertise, review and select the external evaluation consultant through a required competitive bid process. The consultant was selected in June, and her contract begins in August. During the spring months, the campus directors assembled teams on their campuses and finalized subcontract award documentation. A qualified postdoctoral researcher has been identified to support the evaluation team as well as serve as acting assistant director starting August 2012. Effective alliance management requires overall coordination of alliance infrastructure, activities, and interactions and strong leadership at each campus.

Also, during the first year, the alliance leadership team implemented various project management activities, including setting up the alliance office and conferencing facilities; setting up grant and institutional accounts with project funds; issuing subcontract awards to alliance institutions; conducting meetings; and developing program marketing materials, the IINspire-LSAMP website, and an intranet (Sharepoint) site for alliance members. Members of the IINspire-LSAMP team attended the NSF Joint Annual Meeting in June 2012, gaining significant information and insights about project management and effectiveness.

This objective also addresses the responsibility of each institution to leverage financial and other resources from the institution and other partners. Several alliance institutions have begun working closely with state agencies and local industries in an effort to increase internship opportunities and funding support for IINspire-LSAMP students.
B.8 Assessment and Evaluation

Objective 8: Develop and implement an aggregated data assessment and evaluation plan for the IINspire-LSAMP Alliance. Apply appropriate assessment tools to review program activities and improve program quality. Work with each alliance institution to track student enrollment and characteristics.

A formal evaluation plan, including data management, will guide assessment and evaluation activities for the alliance and individual institutions. An evaluation team is led by the internal evaluator. The external evaluation consultant was selected following a competitive bid process required by ISU. Dr. Mariko Chang was selected in June 2012 and will begin working on program evaluation at the start of year two. She will work directly with the Alliance Leadership Team to finalize the program’s logic model and to document an assessment strategy and detailed evaluation plan.

The preliminary logic model has been reformatted and is shown in Figure 3 below. The new formatting provides greater visual clarity between objectives and activities. The logic model will be finalized during fall 2012.

![Figure 3: IINspire-LSAMP Preliminary Logic Model](image)

In addition to typical enrollment, retention and graduation statistics, the following representative outcomes were identified for each of the objectives.

- **Objectives 1 and 2 Outcomes**
  - Number of high school STEM teachers who know about and refer students to IINSPIRE programs
  - Number and type of interaction with ongoing private industry efforts to increase URM participation in STEM fields
  - Engagement of K-12 teachers working with IINSPIRE institutions
Number and percentage of URM high school students entering alliance for STEM
Number and percentage of URM STEM transfers from CC to BS-granting institutions
Number and percentage of undecided enrolled URM students choosing STEM

Objective 3 Outcomes
- Summer bridge programs established at new sites
- Success of summer bridge program participants
- Number of participants and quality of the peer mentoring program
- Number of participants and quality of mentoring clusters
- Number of IINSpire students taking on student life leadership roles

Objective 4 Outcomes
- Number of STEM faculty participating in inclusive pedagogy development
- Number of STEM faculty mentoring URM STEM students
- Number of STEM faculty aware of IINSpire LSAMP
- Number and quality of faculty peer groups
- Faculty collaboration between partner institutions
- Faculty awareness of barriers to URM student success and their role to reduce barriers
- Faculty conversations in departments and colleges about issues and best practices

Objective 5 Outcomes
- Certificate program and guidelines defined alliance wide
- Institution-level infrastructure for the research certificate
- Internship sponsor use of certificate in selection
- Number of students participating in each training level
- Number of students earning a research certificate
- Number of IINSpire students applying for and entering graduate school

Objective 6 Outcomes
- Number of mentor training programs
- Participation by STEM faculty
- Participation by external partners

Objective 7 Outcomes
- Internal resources at alliance institutions used to leverage existing programs and personnel
- Use of funds committed to supporting mentor and pedagogy development
- Success in obtaining external funding to support the sustainability of LSAMP objectives

Objective 8 Outcomes
- Data from all IINSpire institutions are compiled, distributed, and analyzed in a timely manner by all levels of the alliance
- Data are used as evidence to make changes to IINSpire/institution programs, procedures, and policies
- Data are used by individual institutions to assess their programs in a manner more thoroughly/rigorously than possible in isolation

These outcomes will be reviewed and revised as part of the immediate work of the external evaluation consultant.

At the NSF Joint Annual Meeting in June 2012, team members were introduced to the WebAMP online data collection coordinator. IINSpire-LSAMP is working with the coordinator to submit data for the period through June 30, 2012.

B.9 Dissemination

The IINSpire-LSAMP website, http://www.iinspirelsamp.iastate.edu/, was developed during the spring and launched prior to NSF JAM. The site provides information about the program, the alliance, partner institutions, alliance organization and management, events, resources and opportunities for students, faculty, and mentors, and contact information. As it becomes available, information will be posted about undergraduate research and internship opportunities. See Appendix E for a snapshot of the front page.

An IINSpire-LSAMP information sheet was created to distribute at events and share with alliance members. The flyer is easily adaptable for use by any of the alliance institutions for outreach and publicity activities. We
will continue to develop additional materials that will be used and shared across the alliance. See Appendix F for a copy of the flyer.

In April 2012, IINspire-LSAMP team members participated in the ISU “Campus Programs and Broader Impacts Resource Fair,” an event sponsored by the NSF I3-funded SP@ISU Program (http://www.spisu.iastate.edu/events/view/id/260). During the Resource Fair, campus programs and other potential broader impacts partners were available to discuss options for collaboration with faculty in assisting with their broader impacts plans. IINspire-LSAMP was one of thirty-two programs represented. This event provided publicity for IINspire-LSAMP to key audiences at ISU. The information sheet shown in Appendix F was distributed at the event.

Members of the IINspire-LSAMP team attended the NSF Joint Annual Meeting in June 2012. IINspire-LSAMP submitted and presented a poster during the poster session. The team members who attended were Mary Darrow, Danielle Mitchell, and Diane Rover (all of ISU), Kari Hensen (DMACC), and Doug Mupasiri (UNI). Additional details regarding the poster are discussed in section VI, and a copy of the poster is shown in Appendix D.

The alliance is planning its first annual meeting for fall 2012. Potential workshops include project assessment and evaluation, inclusive pedagogy development, and research and peer mentoring.

An IINspire-LSAMP Sharepoint intranet site was created to share internal documents for alliance members only. The site is designed to allow institutions to view, share and store information in one central location. Thus, in all there are three websites associated with the project: the public website for the program maintained by ISU, the intranet site for the alliance, also maintained by ISU, and the SERC-hosted site for faculty peer groups working on pedagogy development.

III. FINDINGS

There were limited conclusions and findings due to the nature of the work during the first year. However, we report the results of various recruiting, bridge, research, and mentoring activities in terms of program participation and evaluation.

Seventeen high school juniors and seniors participated in the Luther College Summer Science Seminars Program. These high-ability URM high school students spent four days in the laboratory with biology, chemistry, and physics faculty. Students were mentored by current URM STEM college students.

<table>
<thead>
<tr>
<th>Luther College Summer Science Seminars Program Participants</th>
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<tbody>
<tr>
<td>Buster Sullivan</td>
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<tr>
<td>Estrella Sullivan</td>
</tr>
<tr>
<td>Eder Rueda</td>
</tr>
<tr>
<td>Celeste Jimenez</td>
</tr>
<tr>
<td>Adriana Ortiz</td>
</tr>
<tr>
<td>Araceli Garcia</td>
</tr>
<tr>
<td>Darrya Cannon</td>
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<tr>
<td>Guadalupe Hernandez</td>
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<tr>
<td>Idell Stubbs</td>
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Several alliance institutions recruited students into the IINspire-LSAMP program. The following table lists the new IINspire-LSAMP students, their alliance institution, and their major(s).
High school seniors participated in the two-week version of ISU’s Summer Program for Enhancing Engineering Development (SPEED). The demographics of these students is as follows:

<table>
<thead>
<tr>
<th>State</th>
<th>Ethnicity</th>
<th>Gender</th>
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<tbody>
<tr>
<td>Missouri</td>
<td>AA</td>
<td>Female</td>
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<tr>
<td>Nebraska</td>
<td>LA</td>
<td>Male</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>Multi-Racial</td>
<td>1</td>
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<tr>
<td>Texas</td>
<td>White</td>
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</tbody>
</table>

The following excerpt from an email by one of the students is an indirect but appreciated indicator of program success.

“Hello, I would like to thank both of you for letting me be part of this program. I learned so much in just two weeks. I am definitely considering going to Iowa State University because of my experience with taste of SPEED. Attached are my reflections over the whole program and shadowing the graduate student. Again thank you so much!”

More formal assessment of this short program will be completed along with the regular program.

Twelve community college students from Iowa Valley Community College District’s Marshalltown Campus participated in the Iowa State University HHMI Project Summer Research Program, listed in the table below. The students ranged in age from 18-50 years of age.

<table>
<thead>
<tr>
<th>ISU HHMI Summer Research Program Participants from IVCCD/MCC</th>
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<tr>
<td>Biridiana Vargus</td>
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<tr>
<td>Guadalupe Merlos Garcia</td>
</tr>
<tr>
<td>Janet Merlos</td>
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<tr>
<td>Leticiah Chepkwony</td>
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<tr>
<td>Maeia Milot</td>
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<tr>
<td>Maria Rangel</td>
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</table>

The STEM Student Success Literacy Survey (SSSL) was used for the evaluation of the HHMI Summer Research Program. The SSSL is described in a research brief in Appendix C, co-authored by the internal evaluator of IINspire-LSAMP and colleagues. The survey instrument includes 63 items and measures self-efficacy, social
capital, transfer knowledge, and general demographics among community college students. The survey instrument was modified to measure the objectives of the summer research program, particularly in the areas of development of self-efficacy and transfer knowledge. The evaluation team administered pre- and post-tests using the survey to measure the differences in students’ self-efficacy and transfer knowledge. Additionally, two focus group sessions were designed to obtain students’ reflections on their experiences in the summer research program as well as recommendations for future programming. Results of the survey and focus groups have not been finalized, as such the findings will be reported in the IINspire-LSAMP annual report for year two. The research brief in the appendix shows an example set of SSSL results (note: these results are not related to the IINspire-LSAMP project and are for illustrative purposes only).

Lastly, the participants of the ISU HHMI Mentor Training Program completed evaluation forms to provide feedback to the program. A copy of the evaluation form is given in Appendix B. The results of this survey were not available at the time of this report.

IV. TRAINING, DEVELOPMENT AND MENTORING

Members of the IINspire-LSAMP team – faculty, staff, administrators, and a graduate student – attended the NSF Joint Annual Meeting in June 2012. The meeting offered various professional development opportunities for participants. Also during JAM, the team was introduced to Jared Malin, ICF Macro, who will be providing technical support for data collection during the project. He gave an overview of the WebAMP system. Further training may be arranged on the use of the system.

Students, peer mentors and teachers who have participated in program activities have advanced their academic and professional development.

Team members participated in the mentor training workshop, reinforcing current and/or learning new knowledge and skills about effective mentoring.

In general, faculty, staff, and students involved with the project have increased their understanding of effective practices for URM STEM student success, their knowledge of the NSF LSAMP program, and their awareness about programs at institutions in the alliance. This has resulted from networking and information sharing activities with alliance members and external partners, and at national meetings.

V. OUTREACH ACTIVITIES

To achieve the overall goal of increasing the number of URM students entering into and graduating from STEM fields, the IINspire-LSAMP program recognizes the value of communicating to various audiences, such as K-12 teachers, students, parents, and community organizations, to inform them about opportunities available in STEM education and careers. Several activities by alliance institutions are highlight below.

Annual Girls Exploring Trades and Technology (GETT) Camp
The annual GETT camp takes place on the Hawkeye Community College’s main campus. The camp invites 25-50 9th grade girls from under-represented populations to explore technical careers with the help of female mentors.

Gateway Academy STEM Camps
Week-long camps were held at multiple sites on the Hawkeye Community College campus in June 2012. The goal of the camps is to increase middle and high school students’ desire and ability to further their education in STEM and, in the long term, assist in meeting workforce needs in the region. The camps provide a unique, in-depth, hands-on STEM learning experience featuring the Gateway to Technology curriculum. One-hundred eighth and ninth graders participated in the program.
Target STEM Career Fair
In September 2012, Hawkeye Community College will be hosting a two-day STEM career fair. More than 1,800 students are expected to attend the event, including 650 URM students. Students will hear from top professionals from in-demand STEM career pathways. Topics include advanced manufacturing, engineering, information technology, and mathematics and statistical analysis.

Girls Discover Engineering Camp
Des Moines Area Community College partnered with Dowling High School (Iowa) and Iowa State University to host an engineering camp for 7th and 8th grade girls. During the three-day camp, girls explored the field of engineering with teachers, students, and industry professionals through hands-on activities and demonstrations.

Discover Engineering Day
Des Moines Area Community College (DMACC) and Iowa State University co-sponsored a one day event that invited high school students and their parents to learn about the engineering careers, take part in hands-on interactive engineering activities and competitions, and meet with engineering professionals and college students. A similar event was held for college-aged students at the DMACC Ankeny campus.

VI. PRODUCTS
The following products are described with section II activities and shown in appendices:
- IInspire-LSAMP website
- IInspire-LSAMP informational materials
- IInspire-LSAMP poster at JAM 2012

JAM 2012 Poster Presentation
Title: An Alliance to Broaden Participation within Changing Midwest Demographics
Lead Author: David Holger
HRD Program Affiliation: Louis Stokes Alliances for Minority Participation

Abstract
The Iowa, Illinois, Nebraska Partnership for Innovation in Research and Education (IInspire) LSAMP alliance consists of 16 state and private universities and community colleges, working together to attract the states’ underrepresented minorities (URMs) and students from other regions into STEM education opportunities available within the alliance.

The IInspire-LSAMP program addresses the critical need to broaden participation of historically underrepresented minorities in STEM education opportunities in the Midwest. The IInspire-LSAMP goal is to more than double the number of STEM baccalaureate degrees awarded to URM students within five years and to build the foundation for continued increases in future years. The IInspire-LSAMP alliance activities include community-based recruiting, bridge programs for entering freshman and community college transfers, inclusive pedagogy development, a research certification program, summer and academic year research opportunities, and internships available through alliance partnerships with state agencies, national laboratories, education programs, and companies based in Iowa, Illinois, and Nebraska.

The ISU HHMI-sponsored Mentor Training Program that took place in early June was audio/video recorded for future use. The recordings will be transcribed and made available as mentoring training tools for the alliance team. Participants provided their consent to the IInspire-LSAMP program and the HHMI Project.

VIII. CONTRIBUTIONS
The IInspire-LSAMP project anticipates contributions in all STEM disciplines, in the development of human resources, in institutional and information resources, and in the public welfare beyond science and engineering. As described in the activities and findings sections, the STEM pathway through different types of institutions is
being influenced through IINspire-LSAMP recruiting, bridge programs, pedagogy development, research training, faculty networking, and workforce development. Development of human resources is at the heart of IINspire-LSAMP, as with all NSF LSAMP programs. The IINspire-LSAMP objectives are focused on increasing the success of URM STEM students, which will ultimately grow and strengthen the STEM workforce. The synergistic partnerships within institutions, across the alliance, and with external partners will advance institutional level efforts in support of project goals. The program materials, assessment tools and aggregated data assessment and analysis across the alliance will serve as powerful information resources to support faculty, students, and evidence-based practices. Given the regional concentration of the alliance and demographic trends, the longer term outcomes of IINspire-LSAMP may dramatically and positively impact workforce quality, communities, and the economy in the region.
APPENDIX A: Disaggregated Data by Discipline and Bachelor Granting Institution

The IINspire-LSAMP program is collecting a baseline set of data from each institution. The data collection procedures for the tables below are being defined and implemented; due to the complexity and need for consistency/coherency, data for 10-11 and 11-12 are not available from alliance institutions at the time of this report.

Blank indicates no degree offered.

### IINspire Alliance Total URM Graduates by Discipline

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### Doane College URM Graduates by Discipline

<table>
<thead>
<tr>
<th>Discipline</th>
<th>AY 2005-06</th>
<th>AY 2006-07</th>
<th>AY 2007-08</th>
<th>AY 2008-09</th>
<th>AY 2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Science</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Computer Science</td>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Engineering</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Environmental Science</td>
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</tr>
<tr>
<td>Geoscience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life/Biological Science</td>
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</tr>
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<tr>
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<tr>
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### Historical Graduation Data Disaggregated by Race/Ethnicity and Discipline.

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<th>AY 2006-07</th>
<th>AY 2007-08</th>
<th>AY 2008-09</th>
<th>AY 2009-10</th>
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<td>6</td>
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<tr>
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<td>0</td>
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<tr>
<td><strong>Native American</strong></td>
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<td></td>
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<tr>
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</tr>
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<td>0</td>
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</tr>
<tr>
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<tr>
<td>Life/Biological Science</td>
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<tr>
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<tr>
<td>Physics Astronomy</td>
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<td>0</td>
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</tr>
</tbody>
</table>
APPENDIX B: Mentor Training Evaluation Form (HHMI Project and IINspire-LSAMP Program)

How **informative** were the main components of the mentor training? "Informative" can be interpreted as that you learned something new.

<table>
<thead>
<tr>
<th></th>
<th>very uninformative</th>
<th>uninformative</th>
<th>informative</th>
<th>very informative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel discussion on essentials of good mentoring</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cases</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Panel discussion on communication and cultural diversity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

How **useful** were the main components of the mentor training? "Useful" can be interpreted as something you would use in your next mentoring opportunity.

<table>
<thead>
<tr>
<th></th>
<th>very useless</th>
<th>not useful</th>
<th>somewhat useful</th>
<th>very useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel discussion on essentials of good mentoring</td>
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<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cases</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Panel discussion on communication and cultural diversity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Which aspects of the cases did you find useful (choose all that apply):

- [ ] Actual case scenario
- [ ] Listening to my group's discussion of the case
- [ ] Talking about issues that happen at ISU related to the case
- [ ] Large group discussion of the case

Which aspects of the cases did you find **most** useful (choose one):

- [ ] Actual case scenario
- [ ] Listening to my group's discussion of the case
- [ ] Talking about issues that happen at ISU related to the case
- [ ] Large group discussion of the case

Please assess the usefulness of each separate case. "Useful" can be interpreted as learning something that you could use in your next mentoring opportunity.

<table>
<thead>
<tr>
<th></th>
<th>very useless</th>
<th>very useful</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Case 1: Trust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case 2: Boring Project</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The duration of the overall training session was
- Far too long
- Too long
- About right
- Too short

The duration of each case discussion was
- Far too long
- Too long
- About right
- Too short

Please provide any comments you might have about the training session
APPENDIX C: STEM Student Success Literacy Survey

The Influence of Financial Barriers on Transfer Decisions of Community College Students in STEM Courses

Tracy Kruse, Soko S. Starobin, Frankie Santos Laanan, and Daniel Russell
Iowa State University

School of Education
July 2012

About SSSL-STEM Student Success Literacy Survey
This is part of a five series policy brief based on the STEM Student Success Literacy project directed by Dr. Soko Starobin, Assistant Professor, School of Education and Director of Office of Community College Research and Policy at Iowa State University (ISU). This project is the first phase of a multi-year research study entitled, Measuring Constructs of STEM Student Success Literacy: Community College Students’ Self-Efficacy, Social Capital, and Transfer Knowledge, funded through the College of Human Sciences at ISU with Dr. Starobin serving as Principal Investigator (PI) and Dr. Frankie Santos Laanan and Dr. Daniel Russell as co-PIs. The goal of this study is to ascertain the level of literacy of community college students regarding their transfer readiness for obtaining a baccalaureate degree in STEM fields. A team of researchers developed a survey instrument, STEM Student Success Literacy survey or (SSSL), which includes 63 items and measures self-efficacy, social capital, financial literacy, and general student demographics. In spring 2012, the research team conducted a pilot study with five community colleges in Iowa. An open section was provided for the pilot participating colleges to customize the instrument. This brief presents selected results and policy issues pertaining to the role of community colleges in STEM education in the State of Iowa.

Background
Iowa political and educational leaders are increasingly worried about the lack of preparedness amongst Iowa high school students for college-level work, particularly in math and science. In recent data from American College Test (ACT®), 50% of Iowa students who took the ACT exam in 2009 were not ready for college-level mathematics study, while for science only 37% were ready for college-level work (IMSEP, 2011).

In response to these concerns, the Governor called together a statewide collection of educators, business professionals, scientists, consultants, government officials and others in an effort to develop a comprehensive plan for STEM education enrichment in the state. This work resulted in developing some bold initiatives that will, among others, 1.) produce increased interest and performance of Iowa learners in STEM fields (including females and minorities) and 2.) develop increased emphasis on STEM educational opportunities from Pre-K through 20 (IMSEP, 2011).

However, one of the barriers to STEM higher education opportunities in Iowa is the rising cost of education. In ranking 4-year private colleges and public universities nationwide, the Project on Student Debt (2011) reported an alarming fact that Iowa students graduated with the 3rd highest educational debt ($29,596) and the state ranked 4th in terms of the percentage of students with debt (72%). Furthermore, it is disheartening that even though community colleges in Iowa provide education at a much more reasonable cost in comparison to its 4-year public counterparts, Iowa’s community college tuition and fees are still amongst the highest (8th) as compared to its peers nationally (Washington Higher Education Coordinating Board, 2010).

Part of the reason for these increased costs is the state’s decreased investment in public higher education. According to the Iowa Policy Project, appropriations between Fiscal Years 2000 and 2011 have decreased nearly 40% for Iowa’s three public universities, after accounting for inflation (Cannon, 2012a). Community colleges were no exception to these funding woes, decreasing by 21% over the same period (Cannon, 2012b). To make up for lost state support, Iowa’s community colleges and public 4-year universities have asked students and their families to cover a larger share of the total cost.

Not only has the decrease in state funding pressured Iowans’ family budgets, but a lack of increase for state and federal student aid has created a serious financial burden for students and their families as well. In 2009-2010, Iowa ranked 24th in the amount of state grant dollars per undergraduate FTE ($244.59), and 44th in terms of percentage of total students receiving grant awards (9.9%). This compares to a ranking of 12th ($378.86) and 28th (13.97%) in 2001-02. In terms of federal support, the maximum Pell grant in 2001-02 was $4,000 and the estimated cost of attending Iowa State for a resident undergraduate, for example, was about $11,000 or a gap of $7,000. Last year, the maximum Pell had increased to $5,550, but the cost of attending school had risen to an estimated $18,900, creating a gap of about $12,350 (Iowa State University, 2012). In other words, the gap between tuition and state and federal support has widened at an alarming pace.

This is especially concerning due to the fact that Iowa’s K-12 population is becoming increasingly diverse. The number of minority students in the state is at an all-time high (86,512) and now makes up 18.5 percent of the student body (Iowa Department of Education, 2011). If Iowa is to
make strong gains in the number of postsecondary STEM degrees earned, it will need to focus more on these minority students (IMSEP, 2011). Unfortunately, these students are also most often financially insecure and unable to afford the rising costs of tuition. A report from the College Board (2011), for example, indicates that the median income for black and Hispanic families was less than 60% of the median income for white families. Even more shocking is that the poorest 20% of families actually make 7% less after inflation than what they did in 1980.

**Purpose of the Study**

In response to these critical issues related to financial need and lack of students in the STEM pipeline, this brief will further explore the financial barriers influence the transfer intentions of STEM students in community colleges in Iowa. The following research questions guided this study:

- What are the background and demographic characteristics of the students?
- Is there a correlation between student loans received, number of hours worked, number of dependents supported, number of hours spent studying and number of hours spent on campus outside of the classroom?
- Are there statistically significant differences in the means of the financial assistance received and intent to transfer or the number of dependents and the intent to transfer? Are there statistically significant differences in the means of the parent’s education or parent’s income level and intent to transfer?

**Data Source and Methods**

Data for this study was collected from students at five community colleges in the State of Iowa. Students who were invited to participate in the study were enrolled in STEM-related courses in the fall 2011 or spring 2012 semesters. Of the students invited to participate in the study, 555 students responded to the survey but only 275 students completed all questions in the survey. For this study, data was analyzed using descriptive statistics, a Pearson correlation and an independent samples t-test.

**Results**

**Descriptive Analysis**

About 79% of the respondents were female, which is larger than the percentage of females (56%) within the Iowa community college population as a whole. The average age of the survey participants was 31 years old, compared to 24 for the statewide average. In regard to race, whites made up 83% of the population (compared to 64% statewide), Asians were 4.4% of the population, Blacks 4.0%, Hispanics 2.2% and those who identified as being two or more races were 5.1% (Iowa Department of Education, 2011).

Three-quarters of the survey respondents were full-time, while 32.7% were married, 41.1% single and 16% divorced or separated. Over half of all respondents were supporting dependents with 29.0% supporting 1-2 persons, 16.5% 3-4 persons, and 4.5% supporting five or more dependents. Of the 274 respondents who answered the question “Are you planning to transfer to a STEM field?” only 47 or

17% said yes. Twenty-seven of them indicated they would transfer in a science field, nine in a technology field and 11 in an engineering field. When asked what their probable careers were, 33% of the remaining participants said health occupations. When asked about their transfer intentions to a 4-year college or university, 155 participants responded affirmatively, while 100 did not.

**Correlation Analysis**

A Pearson correlation was conducted to determine if statistically significant correlations exist between variables associated with finances and ability to pay for college. This study shows that number of dependents supported (a positive relationship), number of hours worked at a job for pay (a negative relationship) and parent’s income (a negative relationship) had a statistically significant correlation with amount of student loans received. The number of dependents supported was also negatively correlated with number of hours spent studying and number of hours spent on campus, but was not correlated to number of hours worked at a job for pay. This would seem to indicate that there are many people with dependents that receive loans and work less hours. This would also explain why people with dependents are more likely to spend time studying, have less concerns about financing their education and why there is no relationship between hours spent at work each week and hours a week spent studying. In addition, students with dependents were also less likely to have outside factors that interfered with their ability to complete the coursework of their most challenging course.

**Comparative Analysis**

A t-test for independent means was conducted to determine if statistically significant differences exist between the means of the variables associated with finances and students’ intentions to transfer to a four-year college or university. The two independent samples t-test that indicated statistical significance were parent’s income and parent’s education level. This indicates that socio-economic status still plays a large role in a student’s decision to attend college and in their degree program choice and in their persistence from a community college to a 4-year college or university. Financial factors related to employment and number of dependents supported were not statistically significant in regards to transfer intentions in this study.

**Implications for Policy and Practice**

According to the Iowa STEM Education Roadmap, if we are to dramatically increase the number of students in the STEM pipeline, we must focus on programs that concentrate efforts on getting more females, minorities and low-income students interested in those fields (IMSEP, 2011).

By scaling up and replicating successful partnerships with K-12 districts, business and industry and community colleges, we can get students engaged in STEM curriculum earlier in their secondary education. By involving the business community, we can ensure timely and relevant curriculum and information about careers in the classrooms and provide positive role models for students.
Community college programs represent one of the best ways to reach disadvantaged students as they disproportionately Attend these colleges over other types of institutions. In this environment, more advising and career counseling may be helpful. There seems to be a disconnect between some students and their understanding of requirements and qualifications necessary to complete advanced degrees. In addition, many students might not understand the importance and value of critical career/technical areas in which they may excel. Manufacturing, for example, might offer tremendous opportunities for students interested in STEM technician fields.

In addition, replicating programs with demonstrated success at other colleges should be considered. Programs such as mentoring, learning communities, early academic interventions, scholarships, science fairs and role model programs will be helpful in the recruitment and retention of students in STEM fields.

Partnering with the transfer institutions is also important, developing articulation agreements that make it easier for a student to transfer. Removing some of these key roadblocks are critical for all students, but even more so for the most at-risk students.

This research is meant to not only assist practitioners in developing initiatives to help these at-risk populations succeed in STEM fields, but it can also be used as a tool for influencing policymakers and grantmaking organizations. If community colleges are to help these students, they need additional funds to do so. Funding some pilot projects that test innovative ideas on a smaller scale might be beneficial.

Lawmakers should also consider ways to financially help disadvantaged students succeed. This is supported by recent research that found that an increase in state need-based grants raised the odds of enrollment in two-year colleges and private competitive colleges (Kim, 2012). For example, if the state is serious about increasing the number of low-income students into STEM programs, they should consider a need-based grant program for students who enrolled in very specific programs named within STEM. This could be administered by the Iowa College Aid Commission. In order to qualify as a STEM program meeting high needs in the state, the college would need to apply and its program(s) would need to be selected. In exchange for receiving the grant, a student must work in the field in the State of Iowa for a specified number of years. If that condition is not met or if the student does not graduate, the grant would be converted to a Federal Direct Unsubsidized Stafford Loan and it would be repaid to the state. Similarly, tuition forgiveness could be given to students who work in STEM fields in Iowa after graduation.

Another idea would be to offer competitive grants through the Department of Education which would require community colleges, 4-year public universities and business/industry to work together to develop innovative 2+2 STEM programs. The grants could require programs that provide one-one-one assistance to students in areas such as tutoring and financial and computer literacy. In addition, using strategies such as Washington state’s I-BEST model could also be incorporated as well as seminars, workshops and summer camps with middle school students and career academies such as Project Lead the Way for high school students. Businesses interested in a qualified STEM workforce could sponsor students, helping cover the cost of their education in exchange for internships during summers and breaks as well as employment after graduation.

Finally, several researchers (Immerwahr, 2003; McDonough & Calderone, 2006; Pena, 2004; St. John, 2006) assert that a main causal factor for the low number of minority and low-income students in college is inadequate knowledge about college costs and a perceived lack of financial aid availability. This suggests that student and their parents could benefit from college financial planning seminars earlier in their secondary education (beginning in middle school). Funding through the Iowa College Aid Commission or other non-profits like the Iowa College Access Network could help pay for such initiatives.

Ultimately, it is important that students and their parents understand the net price – the published price minus the grant aid, scholarships, loans, tax credits and deductions – that students actually pay. These initiatives could also be an avenue to help explain the various types of aid and how to access them. Without this, many students (and their parents) will continue to have “sticker shock” as they go into high school. This could lead to premature decisions about their ability (or inability) to attend college, and lead to poor decision-making regarding whether or not to take college preparatory classes. In addition, educating students about the long-term financial effects of not getting a college education could also counter some students’ reluctance to take on debt, which researchers say is another reason for lack of higher education, especially amongst minority students. (Burdman, 2005; Chen & Des Jardins, 2006; Gladieux & Pena, 2005; Callendar & Jackson, 2005; Kim, DesJardins, & McCall, 2009; Trent, Lee, & Owens-Nicholson, 2006; Dowd & Malcolm 2012.)
Parent Income

![Bar chart showing the percentage of families in different income brackets.]

Parent Education Levels

![Bar chart showing the distribution of father and mother education levels.]

Table 1: Independent Sample t-test of Predictions of Intention to Transfer to a Four-Year College or University

<table>
<thead>
<tr>
<th>Variable</th>
<th>t</th>
<th>df</th>
<th>P</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
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<tbody>
<tr>
<td>Financial aid which must be repaid</td>
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<td>0.57</td>
<td>-0.07</td>
<td>0.39</td>
</tr>
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Note: Omnibus Chi-squared test.

References


Iowa State University (2012). Despite cost trend, student debt is inching downward. Retrieved from http://www.insideiastate.edu/article/2012/02/23/debt


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Suggested Citation
APPENDIX D: NSF Joint Annual Meeting Poster
APPENDIX E: IINspire-LSAMP Website Snapshot
APPENDIX F: IINspire-LSAMP Handout

IINSPiRE-LSAMP
Iowa Illinois Nebraska STEM Partnership for Innovation in Research & Education

MISSION
Develop a model for Midwest colleges and universities to attract the states’ growing under-represented minority (URM) population into STEM fields and attract students from other regions to STEM education opportunities in Iowa, Illinois, and Nebraska.

- Grow the pool of college-ready, STEM-prepared under-represented minority high school students
- Increase the number of URM students who choose STEM at each IINspire Alliance institution
- Improve retention at all IINspire Alliance institutions

GOAL
To double at minimum the number of URMs graduating in STEM fields from the IINspire LSAMP Alliance and have a total enrollment that will support a continued increase in future years.

OBJECTIVES

- Coordinate community based recruiting practices that market the IINspire LSAMP program to teachers, counselors, parents and students throughout Iowa and Nebraska and into Illinois.
- Identify and recruit the cohort of students currently in our institutions who have the aptitude and interest in STEM but do not enter college with the intent of pursuing a STEM career.
- Initiate early and sustained initiatives on transitions from high school to college and transition from community colleges to bachelor granting institutions.
- Develop a faculty peer group that collaborates across the alliance to develop inclusive pedagogy and mentoring that leads to greater student success.
- Develop a research certificate supported by formal research training opportunities, internships, research experiences, and a high standard expected on verbal and written communication.
- Train alliance and external partner mentors of research interns on mentoring skills.
- Encourage each alliance institution to work on the areas critical for them.
- Provide assessment results that each institution can use to improve their programming.

ALLIANCE INSTITUTIONS

| AUGUSTANA COLLEGE | KIRKWOOD COMMUNITY COLLEGE |
| DES MOINES AREA COMMUNITY COLLEGE | LITTLE PRIEST TRIBAL COLLEGE |
| DOANE COLLEGE | LUTHER COLLEGE |
| EASTERN IOWA COMMUNITY COLLEGE DISTRICT | NEBRASKA WESLEYAN UNIVERSITY |
| GRINNELL COLLEGE | UNIVERSITY OF IOWA |
| HAWKEYE COMMUNITY COLLEGE | UNIVERSITY OF NORTHERN IOWA |
| IOWA STATE UNIVERSITY | UPPER IOWA UNIVERSITY |
| IOWA VALLEY COMMUNITY COLLEGE DISTRICT | WARTBURG COLLEGE |

FACULTY OPPORTUNITIES

- Workshops: Mentoring training workshops for faculty and graduate students working with URM STEM students.
- Undergraduate Research: Hosting IINspire LSAMP students for research experience or internships.
- Faculty Peer Networks: Collaboration across alliance on pedagogy development and mentoring.

IINspire-LSAMP is funded by a 5-year award received from the NSF Louis Stokes Alliance for Minority Participation (LSAMP) Program. Additional institutional support comes from the Executive Vice President & Provost, Agriculture & Life Sciences, Human Sciences, Engineering, and Liberal Arts & Sciences.

www.iinspiresamp.iastate.edu
**INSPIRE LEADERSHIP**

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<td>David K. Holger</td>
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</tr>
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<td>Harry A. Martyn</td>
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<td>Natural Sciences, LITTE PRIEST, TRIBAL COLLEGE</td>
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<tr>
<td>Kim Linduska</td>
<td>Co-Principal Investigator</td>
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<td>Co-Principal Investigator, President</td>
<td>Nebraska Wesleyan University</td>
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<td>Frankie Santos Laanan</td>
<td>Internal Evaluator, Professor of Educational Leadership &amp; Policy Studies</td>
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</tr>
<tr>
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<td>Program Assistant, Graduate College</td>
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**ALLIANCE CAMPUS DIRECTORS**

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Program Assistant  
isu Graduate College  
118 Office & Laboratory  
(515) 294-6151  
mitchell@iastate.edu

**INSPIRE ISU TEAM**

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<td>Derrick Rollins</td>
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<tr>
<td>Patricia Leigh</td>
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<tr>
<td>Craig Ogilvie</td>
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<td>Mary Jo Gonzales</td>
<td>Associate Dean of Students</td>
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<tr>
<td>Connie Hargrave</td>
<td>Associate Professor at Center for Technology Learning &amp; Teaching</td>
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<tr>
<td>Debra Sanborn</td>
<td>Program Coordinator, Dean of Student’s Office</td>
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<tr>
<td>Marc Harding</td>
<td>Assistant Vice President of Admissions</td>
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**ALLIANCE ADVOCATES**

- Association of Universities for Research in Astronomy (AURA)
- Avenue Scholars Foundation
- Bethune-Cookman University (Dual-Degree Engineering)
- Fisher Controls International
- HNI Corporation
- Iowa 4-H Youth Program
- Iowa Academy of Science
- Iowa Biotechnology Association
- Iowa Business Council
- Iowa Department of Economic Development
- Iowa Department of Education
- Iowa Mathematics and Science Education Partnership
- Iowa Space Grant Consortium (ISCG)
- Nebraska Academy of Sciences
- Novel Chemical Solutions
- Office of the Governor, State of Iowa
- Rockwell-Collins Corporation
- State Science and Technology Park of Iowa (SSTP)
- The Ames Laboratory
- USDA-ARS Corn Insect and Crop Genetics Research Unit
- USDA-ARS National Laboratory for Agriculture and the Environment

INSPIRE-LSAMP is supported by  
NSF Award Number  
HRD-1102461  
2011-2016

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www.iinspirelsamp.iastate.edu
APPENDIX G: IINspire-LSAMP Alliance Map